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Yields of the Field Experiments 2001

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Yields of the
Classical
and other
Long-term Experiments
2001

YACR - Rothamsted

01/R/EX/4 - Exhaustion Land

Rothamsted Research

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01/R/EX/4

EXHAUSTION LAND

Object: To study the residual effects of manures applied 1876-1901, and of additional phosphate applied since 1986, on the yield of continuous s. barley up to 1991, w. wheat since - Hoosfield.

The 146th year, s. wheat.

For previous years see 'Details' 1977, 1973 and 74-00/EX/4.

Treatments: All combinations of:-

Whole plots (P test)

1. **OLD RES** Residues of manures applied annually 1876-1901:

O	None
D	Farmyard manure at 35 t
N	96 kg N as ammonium salts
P	34 kg P as superphosphate
NPKNAMG	N and P as above plus 137 kg K as sulphate of potash, 16 kg Na as sulphate of soda, 11 kg Mg as sulphate of magnesia
2. **P** Maintenance P (20 kg P) applied annually from 2000 to maintain existing levels of available P in the soil. (P1) (P2) and (P3) are residues of P applied annually 1986-1992:

	2000-01	1986-92
O	None	None
P(P1)	20 kg P	44 kg P
P(P2)	20 kg P	87 kg P
P(P3)	20 kg P	131 kg P

NOTE: P treatments were applied at 61.5 kg P in error in 2000.

plus

Whole plots (K test, previously N test until 1991)

- OLD RES** Residues of manures applied annually 1876-1901:
- | | |
|------|---|
| O | None |
| D | Farmyard manure at 35 t |
| N* | 96 kg N as nitrate of soda |
| PK | 34 kg P as superphosphate, 137 kg K as sulphate of potash |
| N*PK | N, P and K as above |

Experimental diary:

K test:

17-Oct-00 : T : : P basal:(triple superphosphate at 98 kg), plots 2, 4, 6, 8 & 10.

P test:

17-Oct-00 : T : P : P test:(triple superphosphate at 98 kg), plots 011-013, 031-033, 051-053, 071-073, & 091-093.
18-Oct-00 : T : K : K basal/100 kg (muriate of potash at 250 kg), plots 1, 3, 5, 7 & 9.

All plots:

20-Oct-00 : B : : Ploughed.
26-Oct-00 : B : : Combination drilled, Hereward, tr. Sibutol, at 450 seeds/m² with the Accord drill.
21-Jan-01 : B : : Ploughed.

01/R/EX/4

Experimental diary:

Winter wheat failed, re-sown to spring wheat

02-Apr-01 : B : : Combination drilled, Axona, tr. Sibutol, at 350
seeds/m² with the Accord drill.
15-May-01 : B : : 33.5% N at 433 kg.
15-May-01 : B : : tm)Ally at 20 g in 100 l.
: B : : tm)Starane 2 at 0.5 l in 100 l.
13-Jun-01 : B : : Folicur at 0.7 l in 100 l.
20-Aug-01 : B : : Azural at 4.0 l in 200 l.
07-Sep-01 : T : : Combine harvested plots for yield, and discards.
: T : : Sampled, baled and weighed straw.
: T : : Swathed straw.
11-Sep-01 : B : : Baled straw.

Note: Winter wheat failed; re-sown to spring wheat.

Samples of grain and straw were taken for chemical analysis.

P TEST

GRAIN TONNES/HECTARE

***** Tables of means *****

P	O	P(P1)	P(P2)	P(P3)	Mean
OLD RES					
O	1.04	3.69	3.68	2.86	2.82
D	2.18	4.03	4.19	4.10	3.63
N	1.44	3.52	4.02	3.36	3.08
P	2.20	4.00	4.64	4.00	3.71
NPKNAMG	2.15	3.84	4.15	4.09	3.56
Mean	1.80	3.82	4.14	3.68	3.36

GRAIN MEAN DM% 84.1

STRAW TONNES/HECTARE

***** Tables of means *****

P	O	P(P1)	P(P2)	P(P3)	Mean
OLD RES					
O	0.34	2.03	1.86	1.65	1.47
D	1.25	2.16	1.98	1.98	1.84
N	0.40	1.82	2.28	1.36	1.47
P	0.86	1.74	2.30	1.77	1.67
NPKNAMG	0.84	1.87	2.54	1.70	1.74
Mean	0.74	1.92	2.19	1.69	1.64

STRAW MEAN DM% 83.7

PLOT AREA HARVESTED 0.00614

01/R/EX/4

K TEST

GRAIN TONNES/HECTARE

***** Tables of means *****

OLD RES

O	2.47
D	3.20
N*	1.43
PK	0.91
N*PK	1.94

Mean	1.99
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GRAIN MEAN DM% 84.0

STRAW TONNES/HECTARE

***** Tables of means *****

OLD RES

O	1.68
D	1.69
N*	1.54
PK	1.05
N*PK	1.28

Mean	1.45
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STRAW MEAN DM% 65.2

PLOT AREA HARVESTED 0.00614